

3.5 GHz: Census Tract Licenses in Rural Areas Would Promote Broadband Deployment

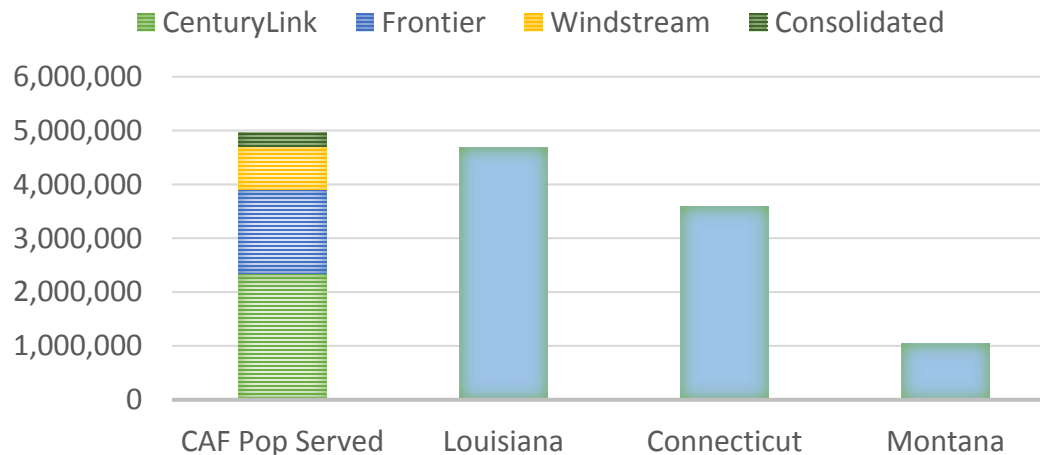
Docket No. 17-258



Commitment to Rural Broadband

- Collectively, our companies have successfully expanded broadband to millions of rural Americans.
- As part of the Connect America Fund (“CAF”) Program, we are investing more than \$6 billion to bring broadband to approximately 2.5 million homes and businesses (roughly 5 million people) through Year-End 2020.

POPULATION COMPARISON



Fixed Wireless

- The 3.5 GHz Band could provide another key tool in the toolbox to reach the hardest to serve rural Americans if carriers are able to access the spectrum for rural fixed wireless deployments.
- Frontier is testing fixed wireless in very rural CAF areas and is exploring 3.5 GHz deployments, including as a member of the CBRS Alliance, which is exploring CBRS specifications and spectrum use rules.
- Windstream too is trialing fixed wireless and modeling 3.5 GHz deployments and is also a member of the CBRS Alliance.
- CenturyLink has obtained an experimental license for 3.5 GHz spectrum.

Rural Broadband Dividend

- Given the scale of our CAF investments in very rural areas, expeditious and competitively neutral access to the 3.5 GHz Band in rural areas could enable our companies to magnify that investment to provide faster speeds to more customers in the most rural areas we serve.

Rural Census Tracts

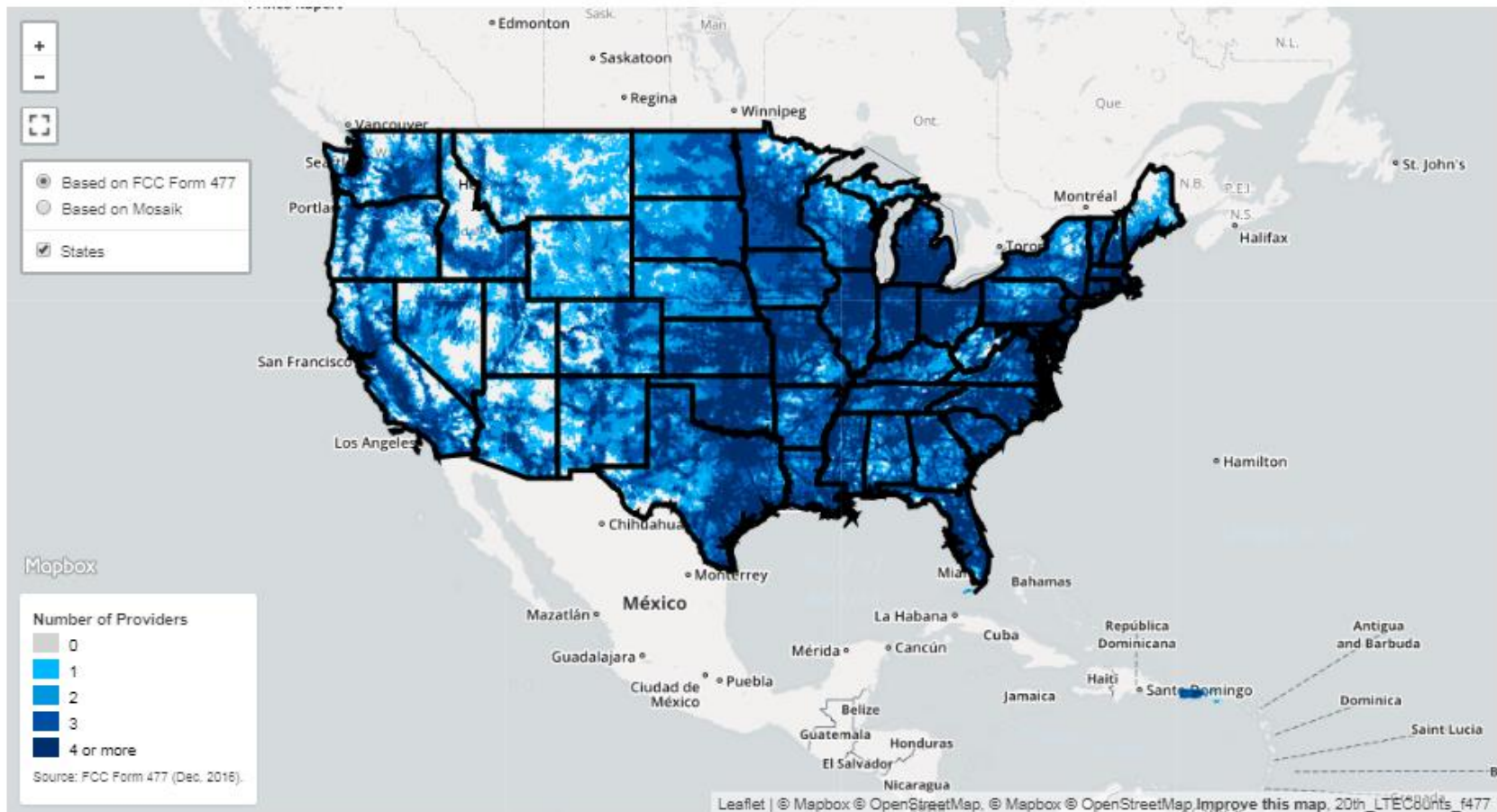
- Partial Economic Areas preclude participation of companies deploying fixed wireless in rural America.
 - As WISPA, for example, showed, rural CAF areas tend to cluster around the edges of PEAs.
 - Counties also are too large. Additionally, counties artificially favor one type of competitor over another.
- Large mobile providers are less likely to deploy using this mid-band spectrum in rural areas where low-band spectrum is not already fully utilized.
- Preserving census tracts in rural areas – including through a hybrid approach that allows larger license sizes in urban areas – will promote rural broadband deployment.

Rural Census Tracts (cont'd)

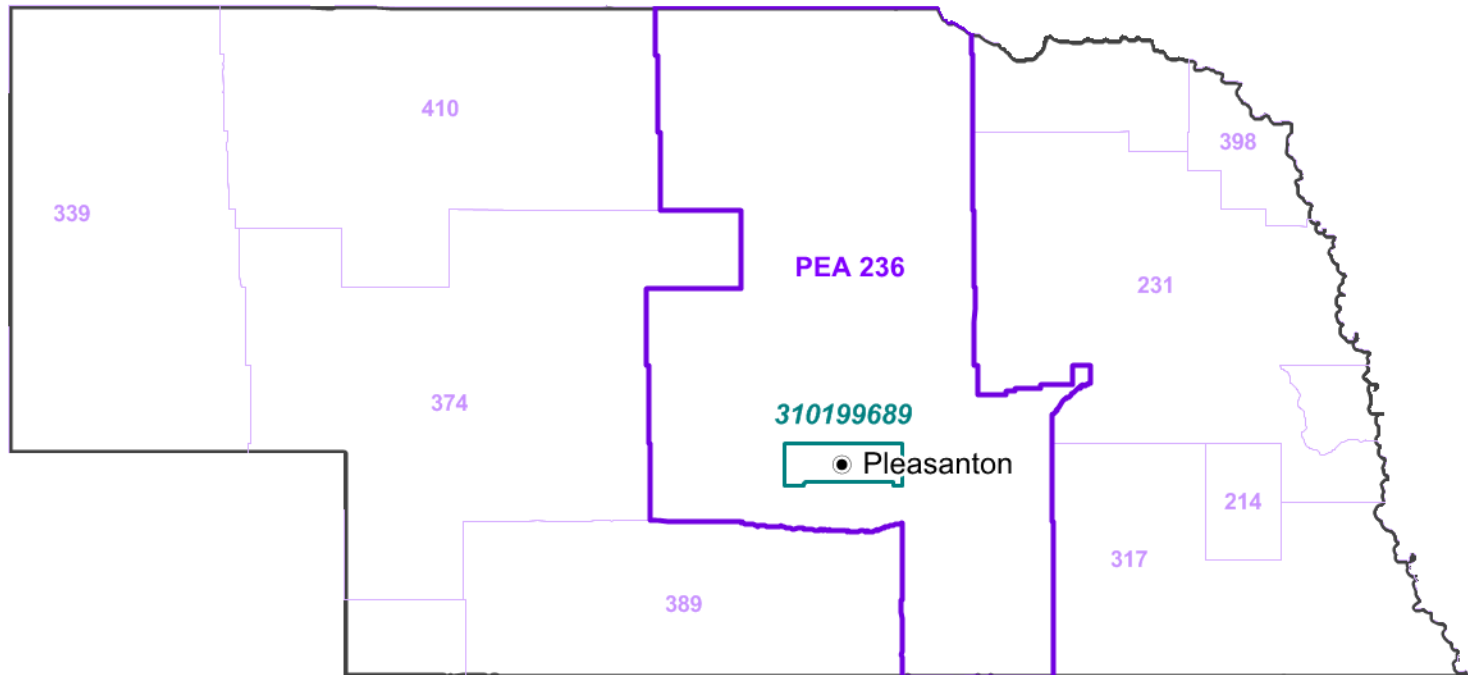
- While there may be a spectrum shortage in urban areas, there is a relative spectrum abundance in rural areas.
- Given the economics of broadband deployment, urban areas may attract several competitors; rural areas frequently require subsidies to attract investment, such as through the CAF program.
- Secondary markets are too costly and slow to allow for rural deployments. Rural players have not been able to realistically obtain spectrum in other bands.
 - At the same time, package bidding coupled with census tract license sizes reduces exposure risk for larger companies while promoting competition.
 - There should be no concern that carriers are going to “cherry-pick” licenses in rural areas.

Rural Spectrum Abundance

LTE Coverage by Number of Providers - YE 2016



Fixed Wireless Census Tract Case Study: Pleasanton, NE



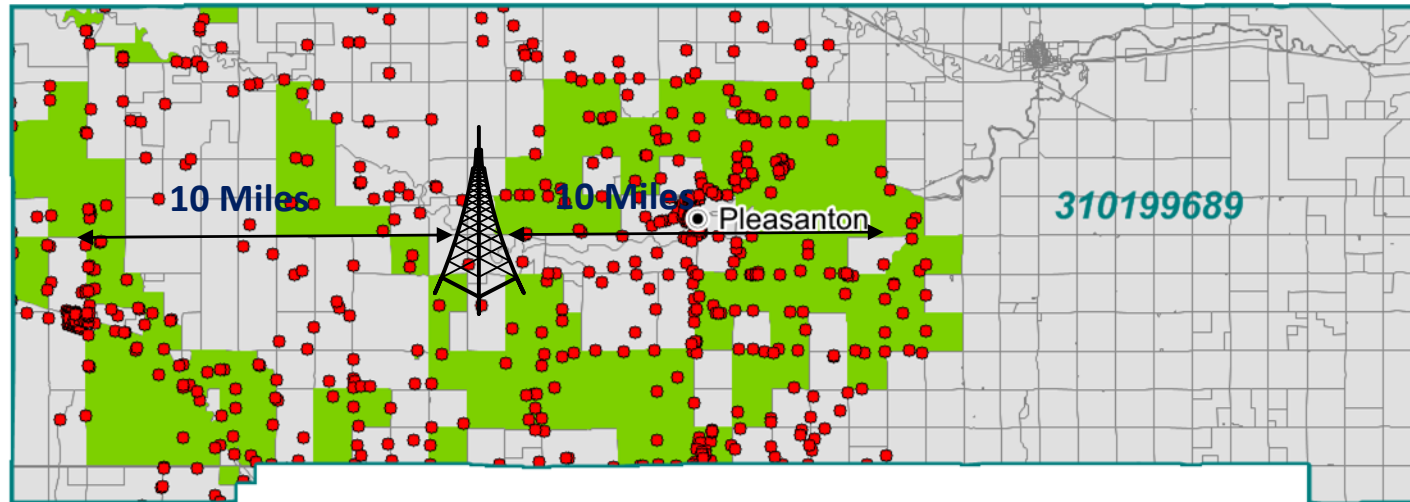
PEA 236

- Area: 18406 sq miles
 - Population: 240,913
- ## Census Tract 9689
- Area: 450 sq miles
 - FTR HHs: > 769

Legend

- City or Town
- 2010 Census Tract
- PEA Region

Fixed Wireless Census Tract Case Study: Pleasanton, NE



Tract Information:

- Area: 450 sq miles
- Width: 37 miles
- Height: 13 miles
- FTR HHs: >769

Potential Deployment (subject to testing):

- 30 MHz of 3.5 GHz spectrum
- Up to 500 HHs
- Up to 25/3 Mbps
- 10 mile radius

Legend

- Households
- 2010 Census Tract
- 2010 Census Block
- CAF II Census Blocks

Additional Mid-Band Spectrum

- Frontier, Windstream, and Consolidated filed joint comments in support of the Broadband Access Coalition proposal to enable fixed wireless in the 3.7-4.2 GHz.
- Enabling more spectrum in rural areas for fixed broadband deployment will help the Commission accomplish its goal of bridging the digital divide.

Looking Ahead: CAF 3 Spectrum Proposal

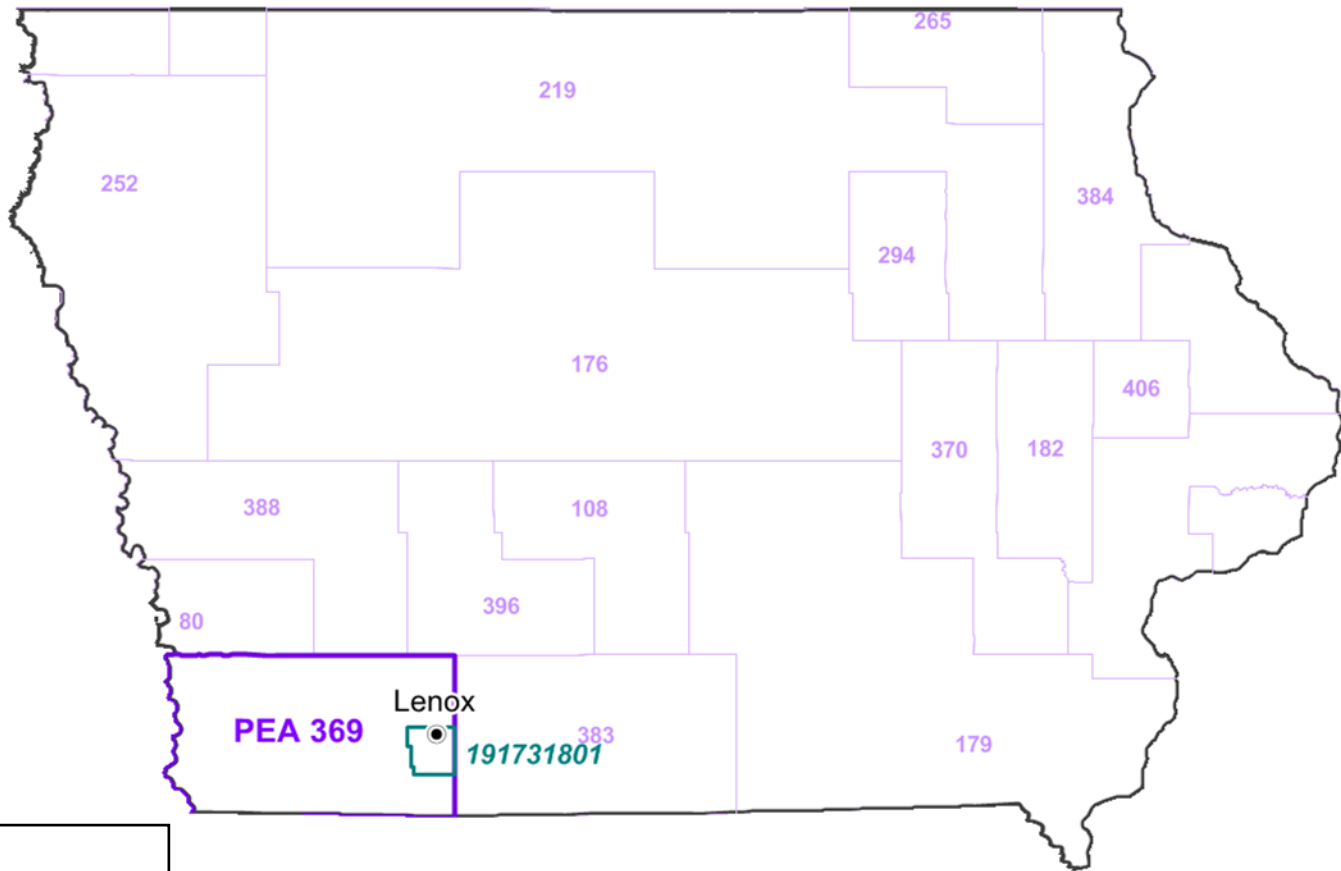
- The Commission should consider allocating 80 MHz of spectrum as part of the CAF program.
 - Currently, the Commission is spending billions on rural buildout under CAF.
 - The Commission is also discussing the possibility of investing auction proceeds towards rural buildout.
- Dedicating 80 MHz of spectrum to CAF would go a long way to aiding and enhancing this buildout.
 - 80 MHz in CAF CBs would enable carriers to deploy sustained speeds greater than 25/3 or more to over 200 customers per site.
 - Technology advances will allow for faster speeds in the future

Conclusion

- Collectively, we are investing billions to bring broadband to millions of rural Americans.
- The correct rules for the 3.5 GHz Band will enable us to amplify those investments, making possible faster speeds to more of the most rural Americans.
- This rural investment in the 3.5 GHz Band is only possible if licenses are made available on a census tract basis in rural America.

Appendix: Additional Fixed Wireless Example

Fixed Wireless Census Tract Case Study: Lenox, IA



PEA 369

- Area: 3423 sq. miles
- Population: 65,203

Census Tract 1801

- Area: 135 sq. miles
- FTR HHs: >934

Legend

- City or Town
- 2010 Census Tract
- PEA Region

Fixed Wireless Census Tract Case Study: Lenox, IA

Potential Deployment (subject to testing):

- 30 MHz of 3.5 GHz spectrum
- Up to 600 HHs
- Up to 25/3 Mbps
- 10 mile radius

Tract Information:

- Area: 135 sq. miles
- Width: 12 miles
- Height: 12 miles
- FTR HHs: >934

Legend

- Households
- ▭ 2010 Census Tract
- ▭ 2010 Census Block
- ▭ CAF II Census Blocks

